

Application No. 09/870,397

Docket No. 21581-00271-US

REMARKS

Claims 13-22 are now in the application. Claim 13 has been amended by reciting "and has a number average molecular weight 500-100,000". Claims 1-12 and 23-25 have been canceled. The amendment to claim 13 reciting "and has a number average molecular weight 500-100,000" finds support in the specification at page 8, lines 12-14.

The rejection of claims 21 and 22 under 35 U.S.C. §112 second paragraph has been overcome by the amendment to the claims filed after the final rejection.

The rejections of claims 13-20 and 25 over Matyjaszewski et al. under 35 U.S.C. §102 (e), of claims 13-16 and 25 over Bronstert et al. under 35 U.S.C. §102 (b) and of claims 19-20 over Bronstert et al under §102 (b) or §103 (a) have overcome by the amendment to claim 13 filed after the final rejection as stated in the advisory action dated September 11, 2003.

By the amendment filed after the final rejection, claim 13 relates to a vinyl polymer having a terminal silyl group and no longer relates to a vinyl polymer having a terminal hydroxyl group. Therefore, the above rejections are no longer applicable.

Claims 13-22 and 24 were rejected over Antonelli et al. under 35 U.S.C. §103 (a). Antonelli et al fail to render obvious the present invention.

The present invention after the amendments to claim 13 relates to a vinyl polymer which has at least one terminal functional group per molecule and has a ratio of weight average molecular weight to number average molecular weight of less than 1.8 and Mn of 500-100,000. The vinyl polymer according to the present invention is capable of exhibiting low viscosity and easy handling characteristics when used in a curable composition.

On the other hand, Antonelli relates to a method of free radical polymerization of unsaturated monomers to make a polymer having reactive functionality, comprising (a) reacting a macromonomer having the end group $-\text{CH}_2-\text{C}(=\text{CH}_2)\text{X}$ for chain transfer with a mixture of monomers having a reactive functionality, and (b) forming a polymer having $-\text{CH}_2-\text{C}(=\text{CH}_2)\text{X}$ at substantially all terminals. As appreciated by the Examiner, the

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terminal silyl group of formula (1) in the polymer of the present invention differs from the terminal group $-\text{CH}_2-\text{C}(=\text{CH}_2)\text{X}$ in the polymer of the reference. Namely, in the terminal functional group, X is $-\text{CONR}_2$, $-\text{COOR}$, $-\text{OR}^1$, $-\text{OCOR}$, $-\text{OCOOR}^1$, $-\text{NRCOOR}^1$, halo, cyano or a substituted aryl, and silyl is only described as an embodiment of R and R^1 . The macromonomer having the end group is a chain transfer agent having Mw/Mn of 2-100 (see claim 14 and column 3, lines 37-42). Moreover, the PMMA macromonomer having Mw/Mn of 1.31 and Mn of 316 is used in the Examples 2-3. Thus, the macromonomer as a chain transfer agent of Antonelli is totally different from the vinyl polymer having Mw/Mn of less than 1.8 and Mn of 500-100,000 of the present invention. Furthermore, in the Examples 2-3 (Table 1), the polymers having reactive functionality, which are obtained by free radical polymerization of the chain transfer agent and the mixture of monomers having a reactive functionality, have Mn of 11743 and 7196 and Mw/Mn of 2.65 and 3.20. Thus, the method of Antonelli cannot produce the vinyl polymer having Mw/Mn of less than 1.8 and Mn of 500-100,000 of the present invention.

Accordingly, Antonelli cannot produce the vinyl polymer of the present invention having at least one terminal crosslinking silyl group (1) and Mw/Mn of less than 1.8 and Mn of 500-100,000. In addition, Antonelli does not even suggest the above excellent effects obtainable by the present invention. Consequently, the present invention is not suggested by Antonelli, and it is unobvious over Antonelli.

In view of the above, consideration and allowance are, therefore, respectfully solicited.

In the event that the Examiner believes an interview might serve to advance the prosecution of this application in any way, the undersigned attorney is available at the telephone number noted below.

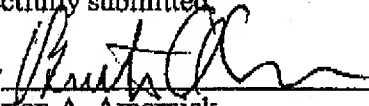
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Dated: 10-07-03

Respectfully submitted,

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